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Modelling exchange rate management and export loans in Nigeria: Using the Autoregressive Distributed Lag Approach

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Abstract

Nigeria's trade imbalance is a result of its demand for foreign exchange regularly over the supply, hence the frequent depreciation of the value of Naira. Taking exchange rate, interest rate, inflation rate, foreign direct investment, and foreign portfolio investment as the independent variables and export loans as the dependent variable, this study, which covered a period of 23 years (2000 – 2022), models the management of exchange rate and export loans in Nigeria. The study used the Augmented Dickey-Fuller (ADF) test for stationarity of the time series, the Bound Test for Co-integration to check the long-term relationship, and the Autoregressive Distributed Lag model to assess the relationship among the variables. The results showed that exchange rate, inflation rate, interest rate, foreign direct investment and foreign portfolio investment jointly and significantly influenced export loans. Consequently, the study recommended that the monetary authorities modify the current process of selling foreign capital inflows in the Nigerian Autonomous Foreign Exchange Market by allowing the fund to be sold to the Central Bank of Nigeria and guaranteeing the provision of fund at the time of repatriation and that the government maintains a stable and competitive exchange rate.

INTRODUCTION

International trade facilitates the flow of goods and services across nations, addressing shortages resulting from limited or insufficient resources. The increasing trend of globalisation has led to greater involvement of many countries in international trade. Nevertheless, the ability to engage in large-scale trade is contingent upon sufficient finance, mostly external financing. However, factors like interest rates, exchange rates, inflation rates, and other macroeconomic indicators influence the availability of finance. International trade financing involves at least a borrower intending to facilitate trade by obtaining credit at a cost, called interest, to either import or export products and services. There are many channels of financing trade, ranging from trade finance to loans, to supplier's credit, direct lending by local financial institutions or foreign financial institutions, intra-firm lending, and many more (Patel, 2021), of which settlements are executed through various modes of payment like Letter of Credit, Bank Payment Obligation, Documentary Collection, Open Account and Cash in Advanced (Malaket, 2020).

In Nigeria, one of the concerns is how to increase foreign exchange earnings through exports and limit imports to products and services that will support growth. As alluded to by some scholars, export-led growth increases domestic economies' production capacity and enhances the home country's visibility and performance in the international market (Kumar et al., 2020). Though instability of the exchange rate constitutes an adverse factor to the success of export-led growth, the expansion of exports helps to reduce trade imbalance. After the 2008 financial meltdown, finance was a prerequisite for the growth of imports and exports. Export financing is imperative, especially when liquidity-constrained firms need to make an advanced payment (Akgündüz et al., 2017). Similarly, export thrives with adequate and cheap finance (Ningi, 2013), unlike domestic trade (Defever, 2020). Aside from external financing, export promotion policies like incentives drive export expansion (Chavez et al., 2020; Munch & Schaur, 2018).

Exports require external financing from financial institutions like development banks and commercial banks due to their high fixed costs, elongated transaction periods, and insurance requirements, which require more funds than domestic trade. (Bajo-Rubio & Berke, 2018; Muuls, 2015). The impact of the exchange rate on these channels of financing trade and the instruments of payments plays a significant role in a country's active participation in international trade, especially in developing economies like Nigeria, where the exchange rate affects the balance of trade (Anoke et al., 2020). Instability in the exchange rate, interest rate, and inflation rates can discourage capital inflow in the form of supplier loans or credit. Export loans can also be reduced if the payment risk is high. Additionally, trade finance can be seriously hindered, and some modes of payment, like Bills for collection and open accounts that give supplier credits, can disappear. Exchange rate risk, exchange rate volatility, depreciation of local currency and transfer risk are

crucial factors considered by correspondent banks in lending to local banks (Li, 2020). The appreciation and depreciation of the exchange rate influence international trade in different ways; this shows an asymmetric impact of real exchange rate instability on export trade in many parts of the world (Bruno & Shin, 2019; Bahmani-Oskooee & Baek, 2021) The changes in the exchange rate system and accompanying changes in the rate influence the country's imports and exports since international trade is denominated in foreign currency. Thus, movement in the exchange rate affects the balance of payment position of any country with its attendance impact on the entire economy (Olanipekun & Ogunsola, 2017; Nnamdi, 2021), especially in an import-dependent country (Alex & Ekiye, 2020).

Despite several studies on exchange rate management's impact on different aspects of the economy, few studies have been conducted on the impact of exchange rate management on export financing. Filling the existing gap, the study investigated the influence of exchange rate management on export financing in Nigeria using the Autoregressive Distributed Lag Approach.

Literature review

Rashid et al. (2022) studied the reaction of Pakistani exports to exchange rate volatility under two conditions: the firms' financial constraints and their level of financial development. The researchers used the GMM estimator to analyse the influence of financial constraints on export volume. The result showed a positive appreciation in the real effective exchange rate, which significantly affected the company's exports. In a related study by Kousar et al. (2022), the authors examined the role of export financing schemes on the asymmetric effect of oil prices on export performance in Pakistan. The findings showed that export performance responds positively to favourable and adverse oil price shocks. Nevertheless, the impact of export financing is significant and positive for textile exports but insignificant for non-textile exports. Similarly, Kurban (2022), studied the influence of US Export-Import Bank public financing on export growth with the closure of the U.S. Export-Import Bank in 2015. The results showed that the termination of the U.S. Export-Import Bank resulted in a 2.2% decline in exports from firms that had previously received financing support.

In an earlier study by Padmaja and Sasidharan (2021), the authors examined the influence of financing constraints on exports among Indian manufacturing firms. The results revealed that financial constraints did not affect export margins but significantly affected export participation. In a similar study but with more recent data and a longer period, Mukherjee and Chanda (2021) analysed 3,200 manufacturing Indian firms from 2000 to 2015 to determine the relationship between external financing and the intensive export margin. The findings showed that an increase in external financing constraints experienced by a manufacturing firm

led to decreased exports at the firm level. The study also revealed that internal financing positively affects export volume, whereas external financing does not. Meng et al. (2021), unlike Mukherjee and Chanda (2021), utilised firm-based experience to investigate the effects of external and internal financing on exports as part of their investigation into the influence of internal and external financing on trade. The outcome revealed that external and internal financing is crucial for a new exporter, whereas external financing is less important for an established exporter. Relating to an earlier study, Gong and Du (2021) examined the external financing of enterprises and the impact of RMB exchange via financial channels, considering the Chinese RMB exchange rate reforms of July 2005 and the second reform in 2015. The result demonstrated a direct relationship between exchange rate fluctuations and the external financing of export-oriented Chinese companies. Like other studies, Bergin et al. (2021) investigated the impact of firm financing on trade using the relationships between financial choice, firm size, and trade behaviour of public manufacturing firms in the United States. The researchers discovered that exporters are more leveraged than non-exporters when considering long-term debt. Aligning with previous studies, Cheng et al. (2021) investigated the heterogeneous effects of finance on exports using data from a large developing nation employing a model of export deregulation. The authors found a positive effect of financial credit on export firms that shifted from indirect to direct exporting compared to those that remained perpetually indirect.

Rahmawati and Djatnika (2020) examined the impact of Sharia and macroeconomic variables on Indonesian exports from 2015 to 2019. The outcome showed that foreign exchange, Islamic Bank financing, LPEI Sharia financing, inflation rate, and exchange rate substantially influenced Indonesian exports. Bruno & Shin (2019) studied the relative impact of the two opposing aspects of Dollar exchange rate movements as a credit supply factor on the level of firms' exports. The scholars found that an appreciation of the U.S. dollar led banks to rely heavily on wholesale Dollar funding to reduce their credit supply to firms. This aligned with the earlier study of Rahmawati and Djatnika (2020). Cho et al. (2019), however, compared the financial options accessible for international trade across 23 countries. The result showed that existing bank debtors experience lower interest rates during the appreciation of the real exchange rate, with an increase in the extensive margin of trade and total exports, allowing them to export more at a profit or increase their export volume. Some studies in Nigeria also supported the results of studies in other parts of the world. Obintawa et al. (2016) examined the exchange rate and export performance trends. The result showed that fluctuations in the exchange rate influence the output of exports in Nigeria. Similarly, Akanbi et al. (2017) found that exchange rate volatility significantly affected the performance of non-oil exports when the authors studied Nigeria's exchange rate volatility and non-oil exports. In a recent study, Mohammed and Madueches (2021) examined the influence of the exchange rate on total Nigerian exports from 1981 to

2019; the result showed a significant positive relationship between exchange rate and exports in the short run. This is an improvement on the earlier studies of Obintawa et al. (2016) and Akanbi et al. (2017), as the direction of influence of exchange rate on export was not stated in the studies. The earlier study of Chaney (2016) did not differ from the recent studies. The scholar investigated the effect of liquidity constraints on exporters by developing two models: trade with liquidity constraints and heterogeneous firms and the impact of frequent movements in exchange rates with liquidity constraints. The outcome demonstrated that an underdeveloped financial market retarded exports, liquidity constraints render trade flows insensitive to exchange rate fluctuations; exports become uncompetitive when the exchange rate appreciates, and unproductive exporters cease operations.

Methodology

The study used secondary data from the Central Bank of Nigeria, the Nigerian Bureau of Statistics, the Nigerian Export-Import Bank, and the World Development Indicators to analyse time series data for 23 years (2000 – 2022) on the exchange rate, interest rate, inflation rate, foreign direct investment, foreign portfolio investment, export loans, import finance, oil and non-oil export financing and oil and non-oil import financing. The study used descriptive statistics and inferential analysis to analyse data on exchange rate management and international trade financing. Pre-tests included correlation coefficient and unit root tests to determine the degree of association. Using the Autoregressive Distributed Lags (ARDL) model, inferential statistics was used to decide the research hypothesis. The study is anchored on the dynamic trade-off theory as used by Esghaier (2023), and it modelled international trade financing as a function of exchange rate management *[EXPL = f(ERM)],* adopting the ARDL model framework as adopted by Godfrey & Agwu (2019), but with slight modification.

$$LNEER_t = \beta_0 + \beta_1 LNEER_{t-1} + \beta_2 LOIL_t + \beta_3 LOIL_{t-1} + \beta_4 LINFL_t + \beta_5 LINFL_{t-1} + \beta_6 LIBR_t + \beta_7 LIBR_{t-1} + \beta_8 LPRIME_t + \beta_9 LPRIME_{t-1} + \beta_{10} LASI_t + \beta_{11} LASI_{t-1} + \mu_t \ldots (1)$$

The functional models

EXPL = f(EXCR, INTR, INFR, FPI, FDI) ....……...…..... (2)

The econometrics model is:

$y_t = \lambda_0 + \beta_1 x_t + \mu_t$ …… (3)

The model specification

$$y_{1t} = \lambda_0 + \beta_1 x_{1t} + \delta_2 x_{2t} + \theta_3 x_{3t} + \psi_4 x_{4t} + \vartheta_5 x_{5t} + \mu_t \ldots\ldots\ldots (4)$$

In determining the impact of the exchange rate management on export loans, the exchange rate management is proxied by the exchange rate, interest rates, inflation rates, foreign direct investment, and foreign portfolio investment. The above functional model is transformed into an econometric model in the form of a linear equation:

$$EXPL = \lambda_0 + \beta_1 EXCR_t + \delta_2 INTR_t + \theta_3 INFR_t + \psi_4 FPI_t + \vartheta_5 FDI_t + \mu_t \ldots\ldots (5)$$

Where: EXCR = exchange rate, INTR = interest rate, INFR = inflation rate, FPI = foreign portfolio investment, FDI = foreign direct investment, EXPL = Export Loan, λ_0 *= intercept,* μ *= stochastic variable,* $\beta_1, \delta_2, \theta_3, \psi_4,$ and ϑ_5 *= coefficients to be estimated,* f *= functional notation,* t *= time subscript.*

Result analysis and discussion of findings

Result analysis

Export loan (EXPL) is the dependent variable. Exchange Rate (EXCR), Interest Rate (INTR), Inflation Rate (INFR), Foreign Direct Investment (FDI), and Foreign Portfolio Investment (FPI) are the independent variables. The sample spans 23 years (2000 to 2022). EVIEWS 12 facilitated the estimation procedure.

Table 4.1 Descriptive Statistics for Exchange Rate Management and Export Loans

	EXPL	EXCR	INTR	INFR	FPI	FDI
Mean	13244.04	198.8628	24.47893	12.57595	2928.272	4143.060
Median	7261.96	153.8625	23.78750	12.13000	831.7716	3453.258
Maximum	78511.68	424.0773	30.60036	18.87365	14992.46	8841.062
Minimum	102.2886	101.6973	18.36250	6.330000	3.385590	775.2474
Std. Dev.	19974.37	100.0077	4.062137	3.546666	4320.610	2460.623
Observations	23	23	23	23	23	23

Source: Researcher's Computation (2023)

From the results in Table 4.1, the export loan in Nigeria had a mean value of ₦13,244.04 billion, with a standard deviation of ₦19,974.37 billion. The total amount spent on export loans was highly susceptible to fluctuation, with varying levels of loans. The exchange rate in Nigeria fluctuated at an average of ₦198.86 between 2000-2022, with a high standard deviation. The interest rate in Nigeria also varied, with a mean value of 24.48% and a standard deviation of 4.06%. Inflation levels in Nigeria were high, with a mean value of 12.58% and a standard deviation of 3.55%. Foreign direct investment in Nigeria was highly prone to change. Foreign portfolio investment in Nigeria is also highly prone to changes, with a mean value of

US$4,143.06 billion and a standard deviation of 2,460.62 billion. The result shows that all the variables changed over the twenty-two years.

Table 4.2 Correlation Matrix for Exchange Rate and Export Loans

Variables	LEXPL	LEXCR	INTR	INFR	LFDI	LFPI	VIF
LEXPL	1						N/A
LEXCR	0.44	1					2.82
INTR	0.2	0.77	1				2.96
INFR	-0.05	0.29	0.28	1			1.18
LFDI	0.11	-0.13	-0.35	-0.3	1		1.35
LFPI	-0.43	-0.26	-0.23	-0.11	0.24	1	1.13

Source: Researcher's Computation (2023)

Table 4.2. shows the degree of association between the exchange rate management proxy and the export loans. The result also revealed a correlation coefficient of +0.20 between Nigerian export loans and interest rates. Similarly, a correlation coefficient of +0.11 exists between export loans and foreign direct investment. The two showed a weak correlation. However, export loans and exchange rates have a positive correlation of 0.44. This is just a moderate relationship. This implies that export loans, foreign direct investment, and exchange rates moved in the same direction. Additionally, there is evidence of a very weak negative association (-0.05) between export loans in Nigeria and the inflation rate; consequently, export loans and inflation rates moved inversely. There is also a moderate inverse relationship between export loans and foreign portfolio investment, which is -0.43. A downward movement in foreign portfolio investment accompanies an upward movement in export loans.

Table 4.3. Result of the Unit Root Test

Variables	**Levels**		**Variables**	**First Difference**		
	ADF	**PP**		**ADF**	**PP**	**Remarks**
LEXPL	-2.863	-2.908	ΔLEXPL	-5.527***	-6.589***	I(1)
LEXCR	-1.038	-1.038	ΔLEXCR	-3.264**	-3.245***	I(1)
INTR	-2.528	-2.528	ΔINTR	-6.177***	-6.175***	I(1)
INFR	-3.049	-3.316***	ΔINFR	-3.661***	-7.694***	I(0)
LFDI	-1.981	-1.981	ΔLFDI	-5.237***	-5.236***	I(1)
LFPI	1.059	-2.49	ΔLFPI	-3.566***	-3.471***	I(1)

Source: Researcher's Computation (2023)
Note: The critical value at 5% for intercept and trend is -3.50, and for intercept alone is -2.93. ** and *** indicate significance at 5 and 1 per cent, respectively.

Table 4.3. displayed the result of the Augmented Dickey-Fuller unit root and Philips-Peron unit root tests conducted to test the stationarity of the data. Export loan (EXPL) was stationary in its first differences because the unit root statistic was more negative than critical values at the 5 percent level for both the ADF and PP unit root tests. All the independent variables, exchange rate (EXCR), interest rate (INTR), foreign direct investment (FDI), and foreign portfolio investment (FPI) were first difference stationary except for

the inflation rate (INFR), which is stationary at the 5% level of significance. The Pesaran and Pesaran's (2001) Autoregressive Distributed Lag (ARDL) model method to cointegration was adopted for the study on two premises; firstly, it allows the combination of levels and first difference stationary variables. Secondly, the simultaneous estimation of the short run and long run dynamics of the model.

Table 4.4.: Exchange Rate Management and Export Loan

Panel A: Long run Estimates				
Dependent Variable: LEXPL				
Variable	**Coefficient**	**S.E**	**t-stat**	**Prob**
C	-2.031	2.386	-0.851	0.428
LEXCR	-0.322	0.704	-0.458	0.663
INTR	0.079	0.035	2.243	0.046
INFR	0.106	0.063	1.693	0.141
LFDI	1.523	0.485	3.143	0.02
LFPI	-0.632	0.17	-3.72	0.01
Panel B: Short -Run Estimates				
Variable	**Coefficient**	**S.E**	**t-stat**	**Prob**
D(LEXCR)	-2.755	1.782	-1.545	0.173
D(INTR)	11.958	2.844	4.205	0.006
D(INFR)	0.023	0.024	0.96	0.374
D(INFR(-1))	-0.089	0.022	-4.075	0.007
D(LFDI)	-0.556	0.312	-1.781	0.125
D(LFDI(-1))	-3.118	0.608	-5.126	0.002
D(LFPI)	-0.204	0.079	-2.574	0.042
D(LFPI(-1))	-0.173	0.092	-1.885	0.108
ECT(-1)	-0.712	0.113	-6.313	0
Panel C: Diagnostic Tests		**Statistic**	**Prob.**	
Bound Test		7.607	0	
Adjusted R-square		0.808		
F-Statistic		26.082	0	
Serial Correlation		3.779	0.152	
Heteroscedasticity		1.82	0.131	
Linearity Test		1.946	0.784	
Normality		1.402	0.496	
Stability Test		CUSUM Stable	CUSUMSQ Stable	

Source: Researcher's Computation 2023

Table 5.1 reports the long run estimates, short run estimates and diagnostic tests. The estimated equation is provided as follows based on the estimated model in the Table.

$$LEXPL_t = \alpha_0 + \alpha_1 LEXCR_t + \alpha_2 INTR_t + \alpha_3 INFR_t + \alpha_4 LFDI_t + \alpha_5 LFPI_t + \mu_t$$

$$LEXPL_t = -2.031 - 0.322 LEXCR_t + 0.079 INTR_t + 0.106 INFR_t + 1.523 LFDI_t - 0.632 LFPI_t$$

T –test = – 0.851 – 0.458 2.243 1.693 3.143 –3.720

Bound Test

The results show that the bound test statistic of 7.607 is statistically significant at the 5 percent level, evidencing the probability of a long run cointegrating relationship based on its statistical value of 7.607, above the 5 percent critical values of 4.26, 3.5, and 3.13. This indicates that the factors may have a long-term cointegrating relationship. As a result of the potential existence of a long run relationship between exchange rate management and export loans, the analysis calculated the long run and short run elasticity. Table 5.1 depicts the empirical result for the model simulating the short run and long-term effects of exchange rate management and export loans.

The Long run Dynamics

Table 5.1 is divided into three sections, panels A, B and C. Panel A shows the estimated long run coefficients for the ARDL model. The export loan and exchange rate are negatively correlated over the long run. This means that rising exchange rates cause a decline in Nigerian export loans; a 1% increase in the exchange rate leads to a 0.322% drop in export loans. In addition, the result shows no significant relationship between the exchange rate and the export loan in Nigeria (LEXCR = -0.322, t-test = -0.458, $p > 0.05$). This means that the exchange rate has an insignificant impact on the variation of export loans in Nigeria. The result also shows a positive relationship between interest rates and export loans; export loans rise as interest rates rise. Therefore, a 1% increase in interest rate brings about a 0.079 increase in export loans. The result established a significant association between Nigeria's interest rates and export loans (INTR = 0.079, t-test = 2.243, $p < 0.05$). It implies that interest rates significantly influence fluctuations in export loans in Nigeria. Furthermore, from the findings, inflation rate and export loans are positively correlated; as inflation rates rise, export loans also move upward. Consequently, a 1% rise in inflation rates leads to a 1.106% increase in export loans. The findings revealed no significant relationship between Nigeria's inflation rate and export loans (INFR = 0.106, t-test = 1.693, $p > 0.05$). This suggests that inflation rates do not cause major fluctuations in Nigeria's export loans.

The result revealed a positive relationship between foreign direct investment and export loans in Nigeria; as foreign direct investment rises; export loans also increase – a 1% rise in foreign direct investment results in a 1.523% increase in export loans. The relationship is significant (LFDI = 1.523, t-test = 3.143, $p < 0.05$).

This suggests that foreign direct investment significantly influences the fluctuations in export loans in Nigeria. Contrarily, the findings showed a negative association between foreign portfolio investment and export loans; a rise in FPI leads to a decline in export loans. A 1% increase in FPI leads to a 0.632 reduction in export loans. In addition, the result showed a significant relationship between FPI and export loans in Nigeria (LFPI = -0.632, t-test = -3.720, $p < 0.05$). This suggests that foreign portfolio investment significantly influences fluctuations in export loans in Nigeria.

Short run Dynamics

The short run dynamics was to determine whether the changes and statistical significance observed in the long run exist in the short run. Also, the error correction term assessed the degree of adjustment back to equilibrium. The error correction term (ECT_{t-1}) measures the short run adjustment process and shows how quickly variables recover from a shock and reach equilibrium. For the coefficient of ECT_{t-1} to be stable, it must be statistically significant and have a negative sign. The result shows a short run negative and insignificant relationship between exchange rate and export loans. This aligns with the long run. It suggests both short run and long run effects of exchange rates on export loans in Nigeria. The result further shows that the interest rate has a positive and significant relationship with export loans in Nigeria in the short run. However, inflation rate, FPI and FDI have a negative and significant relationship with export loans.

From Panel B, the cointegration term has a negative sign and is statistically significant (ECT= -0.712, t-test = -6.313, $p < 0.05$). It is also as large as anticipated. This shows that Nigeria can readily compensate for any departure from the steady state. This means that deviations from the export loan equilibrium route are adjusted by over 71 per cent throughout the following year. Nigeria has a relatively high adjustment process, and the significance shows that in Nigeria, exchange rate management and export loans have an equilibrium relationship over the long run.

The Adjusted R-square is 0.808, which suggests that changes in the exchange rate, interest rate, inflation rate, foreign direct investment, and foreign portfolio investment account for about 81 per cent of changes in export loans, but the remaining 19 per cent were other factors affecting changes in export loans but not included in the model. The *F*-test, which checks the null hypothesis that all model coefficients are zero, reveals how well the model generally fits the data. The *F*-test in this instance is significant at the 5% level, showing that the model as a whole fits the data well. As an alternative, the *F*-test statistic of 26.082 with a probability value of 0.000 suggests that Nigeria's export loan variations are significantly influenced by changes in the exchange rate, interest rate, inflation rate, foreign direct investment, and foreign portfolio investment.

Decision

At 5 % level of significance and degree of freedom of (5, 17), the *F*-test statistic of 26.082 is statistically significant at 0.05 level; this implies that the null hypothesis that exchange rate management has no significant effect on export loans in Nigeria was rejected and that the alternative hypothesis that exchange rate management has a significant impact on export loan was accepted.

Post-estimation test

For the accuracy and reliability of the parameter estimates and to enable the drawing of reliable conclusions from the results, the study conducted five diagnostic tests. These are the serial correlation test, the homoscedasticity, the normality test, the linearity test and the stability test, using CUSUM and CUSUMSQ. The result shows *F*-statistic of 3.779 with a probability value of 15% which is above the threshold of 5%, indicating that the successive error terms are not serially associated. The study concluded that the estimated model for exchange rate management and export loans in Nigeria did not have any correlation between the consecutive error terms. The heteroscedasticity results also demonstrate that the *F*-statistic of 1.820 with a probability value of 13 percent is not statistically significant at the 5 percent level of significance; there is evidence that the variance of the error terms is homoscedastic.The Ramsey RESET test, which was used for linearity test, has an *F*-statistic of 1.946 and a probability value of 78 percent, which is higher than the threshold of 5 per level, but it is not statistically significant. There is proof that the estimated model export loans and exchange rate management in Nigeria are linearly and correctly specified. The normality null hypothesis was not rejected because the Jarque-Bera statistic for normality testing generated an *F*-statistic of 1.402 with a probability statistic of 49 percent, which is more than the 5 percent level of significance. Additionally, the CUSUM and CUSUMSQ statistics provided in Panel C of Table 4.4, as well as Figures 4.1 and 4.2, demonstrate the stability of the estimated model because the plot of the CUSUM and CUSUMSQ statistic remains within a 5 percent significant threshold, as shown by two straight lines.

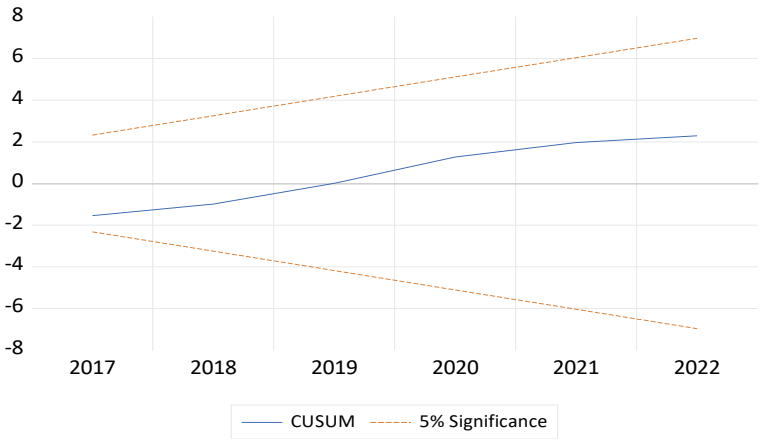

Figure 4.1 Stability Test – Plots of Cumulative Sum of Residual

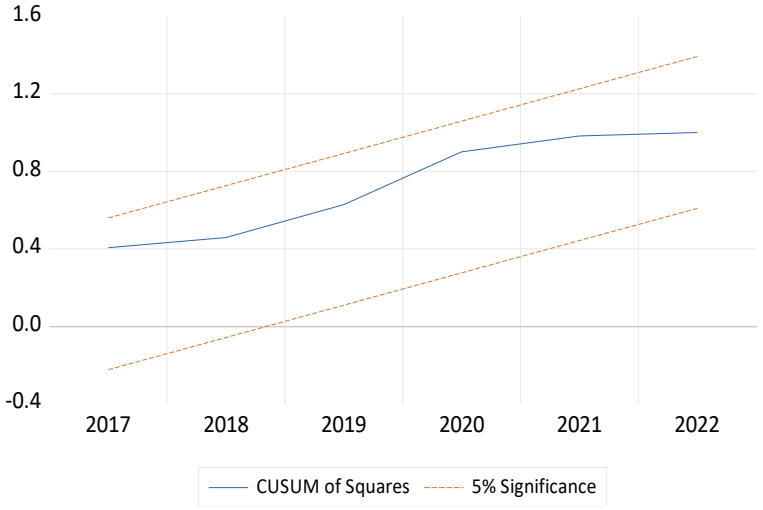

Figure 4.2 Stability Test – Plots of Cumulative Sum of Square Residual

Discussion

With the aid of the Autoregressive Distributed Lag model, the objective of the study was achieved. There was evidence of a long run cointegrating relationship between exchange rate management and export loans in Nigeria. The long run result showed that exchange rate and foreign portfolio investment have a negative relationship with the export loan, while interest rate, inflation rate, and foreign direct investment have a positive relationship with the export loan in Nigeria. The short run results showed a negative and insignificant relationship between exchange rate and export loans, while interest rate had a positive and significant short run relationship. In the short run, inflation rate, foreign direct investment, and foreign portfolio investment had a negative and significant relationship with export loans. Based on the result, the hypothesis testing supports the rejection of the null hypothesis that there is no significant effect of exchange

rate management on export loans in Nigeria.

The result showed that export loans decrease as the exchange rate rises both in the long and short run. This implies that as rates depreciate, the input cost rises, which increases outward payment; this agrees with the study by Bahmani-Oskooee & Baek (2021), who found that the depreciation of Thailand's currency increased its outward payment to eight partners accounting for 41% of its trade share, while the Baht increased its payments to seven trading partners with 23% of its trade share. The demand for more fund should increase export financing; contrarily, it decreases because of other factors like non-performing loan incidences that discourage financial institutions from availing loans.

Additionally, exchange rate depreciation makes exporters react swiftly to export more because of the benefits of increased proceeds in Naira, but because of the possibility of diversion of proceeds to the parallel markets, thereby exposing the bank to the risk of high non-performing loans, financing such desire for expansion are turned down. This agrees with Ayemibo (2022); the study showed that Nigerian Banks declined 94% of exporters' loan requests. Similarly, Dai et al. (2021). studied access to finance and the exchange rate elasticity of exports using Chinese firm-level data. The study showed that with both intensive and extensive margins, exporting activities of firms that are financially constrained react more swiftly to changes in exchange rate than exporting activities of firms that can quickly raise external finance.

The results of this study are also akin to the findings of Hwang and Im (2017), who studied the impact of trade finance shock on Korean real exports using novel data on Korean foreign trade loans from commercial banks and documentary bills purchased by Korean banks. With the aid of the Vector Autoregression model, the result showed that a drop in both trade loans and documentary bills purchased by banks led to an adverse impact on Korean exports, especially exports by small and medium enterprises. Furthermore, the Interest rate and FDI positively correlate with export loans. Consequently, as interest rates rise, export loans increase; financial institutions In Nigeria may lend more but cautiously. This allows them to meet the Loan-Deposit Ratio (LDR) and absolve them from the Cash Reserve Ratio (CRR) debit from CBN as a punitive measure to enforce compliance with LDR. Likewise, as interest rates increase locally, more FDI comes in the form of loans to support exporters. This relates to a European study by Fetai and Morina (2019), which investigated whether FDI inflow accelerates export performance in European countries in transition. The results demonstrated a positive relationship between FDI and export performance in transitional European nations.

The results of the study also aligned with Gong and Du. (2021). The authors studied the enterprises' external financing and the effect of RMB exchange through financial channels given the Chinese RMB exchange rate reforms of July 2005 and the second reform of 2015. The result showed a clear correlation between exchange rate fluctuation and external financing of export-oriented Chinese enterprises. Additionally, the results of the study support the findings of Rahmawati and Djatnika (2020) but differ from those of Cho et al. (2019).

Conclusion and recommendations

The study investigated the impact of exchange rate management on export loans in Nigeria. Using annual time series data on export loans and exchange rate management (proxied by exchange rate, inflation rate, interest rate, foreign direct investment, and foreign portfolio investment) from 2000 to 2022, the findings showed exchange rate, interest rate, inflation rate, foreign direct investment, and foreign portfolio investment jointly and significantly influenced export loans. The study concluded that the exchange rate management significantly influenced export loans in Nigeria.

The study recommends that the monetary authorities modify the current process of selling foreign capital inflows in the Nigerian Autonomous Foreign Exchange Market by allowing the CBN to buy the fund and guarantee the provision of fund at the time of repatriation. This will build confidence in the system and encourage foreign investors to invest in Nigeria, thereby increasing the supply of foreign exchange. This will ultimately lead to Naira appreciation, increase export loans, and subsequently add to the available foreign exchange in the market. Exchange rate depreciation earns more Naira for exporters and increases export financing. Nevertheless, the overall impact of Naira depreciation is inimical to the economy.

Furthermore, the government should maintain a stable and competitive exchange rate through policies that boost foreign exchange earnings. The crude oil proceeds should be restricted to developmental demands, and the government should urgently pursue the eradication of crude oil theft to boost foreign earnings and reserves.

COMPETING INTERESTS

The authors have no compting interest to declare.

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